



PvuI (7)  
SgfI (6) MfeI (82)  
1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCCGCAATTGAACGGGTGCCTA  
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGTGCTGTACTGGCTCCGCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)  
Psp1406I (203) PvuII (239) Bsu36I (291)  
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCGCCGCCCTACCTGAGGCC  
301 GCCATCCACGCCGTTGAGTCGCGTTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

BstEII (555)  
AgeI (552)  
501 TCTGTTCTGCGCGTTACAGATCCAAGCTGTGACCGCGCTACCTGAGATCACCGGTACCATTGGCAGAGGCACCGCTTCCCCGGCCCCGCTCTCTCC  
601 GCTCGAAGTGGAGCTGGACCCGGAGTTCGAGCCCCAGAGCCGTCGCGATCTGTACGTGGCCCTGCAAAGCGGGAGCTCCAAGCGAGCCCTGCCAAG  
13▶ L E V E L D P E F E P Q S R P R S C T W P L Q R P E L Q A S P A K  
701 CCCTCGGGGAGACGGCCGCGACTCCATGATCCCCGAGGAGGAGACGATGAAGACGACGAGGACGGCGGGGACGGGCCGCTCGGCCATGGCGATCG  
47▶ P S G E T A A D S M I P E E E D D E D D E D G G G R A G S A M A I  
801 CGGCGGGCGGGGAGCGGCACGCTGGGCTCCGGGCTGCTCCTGAGGACTCGGCCGGGTGCTGGCACCCGGAGGCAAGACCCCGGTCTGGGCCAGC  
80▶ G G G G S G T L G S G L L L E D S A R V L A P G G Q D P G S G P A  
901 CACCGCGGGCGGGGCTGAGCGGGGTACACAGGCGTCTGACGCTCAGCAACCGCTGCCACCGCCGAGCCGGGGCGGCTGGGGGCTCCGGGCAG  
113▶ T A A G G L S G G T Q A L L Q P Q Q P L P P P Q P G A A G G S G Q  
1001 CCGAGAAATGTTCTGTCGCGCGGAACGCTGGGAAACCTGTCTACGCGGACTGATCACCCGCGCATCGAGAGCTCCCCGGACAAACGGCTCACTC  
147▶ P R K C S S R R N A W G N L S Y A D L I T R A I E S S P D K R L T  
1101 TGTCACAGATCTACGAGTGGATGGTGCCTGCTGCCCTACTTCAAGGATAAGGGCGACGCAACAGCTCTGCCGGCTGGAAGAACTCCATCCGGCACAA  
180▶ L S Q I Y E W M V R C V P Y F K D K G D S N S S A G W K N S I R H N  
1201 CCTGTACTGCATAGTCGATTCATGCGGGTCCAGAATGAGGAACTGGCAAGAGCTCTTGGTGGATCATCAACCCTGATGGGGGGAAGAGCGGAAAAGCC  
213▶ L S L H S R F M R V Q N E G T G K S S W W I I N P D G G K S G K A  
1301 CCCCAGCGGGGCTGTCTCCATGGACAATAGCAACAGTATACCAAGAGCCGTGGCCGCGCAGCCAAAGAAGAAGGACGCCCTGCAGACAGCCCCGAAT  
247▶ P R R R A R A V S M D N S N K Y T K S R G R A A K K K A A L Q T A P E  
1401 CAGCTGACGACAGTCCCTCCCAGCTCTCCAAGTGGCCTGGCAGCCCCACGTCACGCAGAGTATGAGCTGGATGCGTGGACGGACTTCCGTTACGCAC  
280▶ S A D D S P S Q L S K W P G S P T S R S S D E L D A W T D F R S R T  
1501 CAATTCTAACGCCAGCACAGTCAAGTGGCCGCTGTGCGCCATCATGGAAGCACAGAGTGGATGAAGTCCAGGACGATGATGCGCTCTCTCGCCATG  
313▶ N S N A S T V S G R L S P I M A S T E L D E V Q D D D A P L S P M  
1601 CTCTACAGCAGCTCAGCCAGCCTGTACCTTCAAGCAAGCGTGCACGGTGGAACTGCCACGGCTGACTGATATGGCAGGCACCATGAATCTGAATG  
347▶ L Y S S S A S L S P S V S K P C T V E L P R L T D M A G T M N L N  
1701 ATGGGCTGACTGAAAACCTCATGGACGACCTGTGGATAACATCAGCTCCCGCCATCCCAGCCATCGCCACTGGGGGACTCATGCAGCGGAGCTTAG  
380▶ D G L T E N L M D D L L D N I T L P P S Q P S P T G G L M Q R S S S  
1801 CTTCCCGTATACCACCAAGGGCTCGGGCTGGGCTCCCAACAGCTCCTTTAACAGCAGGTGTTTCGACCTTCTGAACTCCCTACGCCAGTCT  
413▶ F P Y T T K G S G L G S P T S S F N S T V F G P S S L N S L R Q S  
1901 CCCATGCAGACCATCAAAGAAACAAGCCAGCTACCTTCTCTCCATGTCACACTATGGTAACCAGACACTCCAGGACCTGCTCACTTCGGACTCACTTA  
447▶ P M Q T I Q E N K P A T F S S M S H Y G N Q T L Q D L L T S D S L  
2001 GCCACAGCGATGTCATGATGACACAGTCGACCCCTTGTGCTCAGGCCAGCACCGTGTGTCTGCCAGAATTCGCCGGAACGTGATGCTTCGCAA  
480▶ S H S D V M M T Q S D P L M S Q A S T A V S A Q N S R R N V M L R N  
2101 TGATCCGATGATGTCCTTTGCTGCCAGCCTAACCCAGGAAAGTTGGTCAATCAGAAGTGTCTCCACCACCAGCACCAACCCAGGGCGCTCTTGGTGGC  
513▶ D P M M S F A A Q P N Q G S L V N Q N L L H H Q H Q T Q G A L G G  
2201 AGCCGTGCCTTGTGCAATTCTGTGAGTGGCTTGTGAGTGGCTTGGTTCAGCCAAACACCAGCAGCAGTCTCTGTGAGCCAGTCTA  
547▶ S R A L S N S V S N M G L S E S S L G S A K H Q Q Q S P V S Q S  
2301 TGCAAACCTCTCGACTCTCTCAGGCTCCTCTTGTACTCAACTAGTGAACCTGCCGTCATGGGCCATGAGAAGTTCGCCAGCAGCTTGGACCT  
580▶ M Q T L S D S L S G S S L Y S T S A N L P V M G H E K F P S D L D L

BspLU11I (2402)  
2401 GGACATGTTCAATGGGAGCTTGAATGTGACATGGAGTCCATTATCCGTAGTGAACCTCATGGATGCTGATGGGTTGGATTTTAACTTTGATTCCCTCATC  
613▶ D M F N G S L E C D M E S I I R S E L M D A D G L D F N F D S L I

StuI (2552)  
2501 TCCACACAGAATGTTGTTGGTTTGAACGTGGGAACTTCACTGGTGTAAAGCAGGCCCTCATCTCAGAGCTGGGTGCCAGGCTGAAGGATCACTGAGGAAG  
647▶ S T Q N V V G L N V G N F T G A K Q A S S Q S W V P G •

MscI (2611)  
NheI (2605)  
2601 GGGAAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGA

HpaI (2743) MfeI (2754)  
2701 TGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAG  
2801 GTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTCTAAATACAGCATAGCAAACCTTAACTCCAATCAAGCCTCTACTTGAATCCT  
2901 TTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTCATGGAGTTAAGATATAGTGT

SapI (3021) SspI (3078) SmaI (3092)  
3001 ATTTTCCAAGGTTTGAAGTACTGCTCTTTCATTTCTTTATGTTTTAAATGCAGTACCTCCACATTCCTTTTTAGTAAAATATTCAGAAAATAATTTAAAT

EcoO109I (3153)  
3101 ACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACA  
3201 AAGGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACC  
141◀ • N R T Y K L P I L E E I T T K V

BstXI (3382)  
3301 AGCTTGCCATTCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGT  
123◀ L K G N M E I L V F C D P A Y D S I L E R C M G C P S V V R I S R D  
3401 CCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGAC  
90◀ V E D S Y P H R V A V I T D F D K Q G N S V A S G I A I A E A C V

StuI (3517)  
3501 AGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGTCTTGTCTCATAG  
57◀ T V R G I Y A E I H V A S I I E G T K T R I A A G V H H K N D E Y

BbsI (3663)  
XmnI (3659)  
3601 AGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTAT  
23◀ L M T I K E T A V E V L E L D Q Q S I N F T K M ◀

AseI (3725)  
3701 ACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCATAACGAGCTCTGCTTATATAGA

SpeI (3880)  
3801 CCTCCCACGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCC  
3901 ATTGACGTCAATGGGGTGAGACTTGGAAATCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCG

SnaBI (4008)  
4001 ATGACTAATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGCATAATGCCAGGGCGGCCATTTACCGTCATTGACGTCAATAG

NdeI (4113)  
4101 GGGGCGTACTTGGCATATGATACTTGTACTGCAAGTGGGCGAGTTTACCGTAAATACTCCACCATTGACGTCAATGGAAAGTCCCTATTGGCGT

PacI (4299)  
SdaI (4291)  
4201 TACTATGGAAACATACGTCATTATTGACGTCAATGGGCGGGGTGCTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAGGT

BspLU11I (4309)  
4301 TAAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCA  
4401 TCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCGTGAAGCTCCCTCGTGCCTCTCTGTT  
4501 CCGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTCGGGAAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCCGTTGATAGG

ApaLI (4623)  
4601 TCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACA  
4701 CGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCTAACTACGGC  
4801 TACACTAGAAGAACAGTATTTGGTATCTGCGCTGCTGAAGCCAGTTACCTCGAAAAAGAGTTGGTAGCTCTTGTATCCGGCAACAAACCACCGCTG

4901 GTAGCGGTGGTTTTTTTGTTCGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTG

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EagI (5059)

PacI (5039) SmaI (5048) **NotI (5058)**

5001 GAACGAAAACACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTG

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5101 TTGGTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCGAGTGAAGTGCAGG

5201 TGCCAGAACATTTCTCTATCGAA